Work Orde March-01-13 1:		80		*979	980)*							Page 1	
Revision ID:	D4148-041 Crosstube Lug A	Assembly, Fwd		Accept	*	1900	040	100)*	Setup	Start Stop		S1* S2*	·
	3/06/13	Start Qty: 2.00 Req'd Qty: 2.00	*2* *2*			Cust Item I Customer:	D:							
Approvals:		: MLJ					ate:]	Run	Start Stop		R1* R2*	
Sequence ID/ Work Center II	D	Operation Description		Set Up/ Run Hours		Tool ID	Tool #	Plan Code	Accept Qty	Rej Qty		Reject Number	Insp. Stamp	
D4148 100 *100* Small Fab Small Fab	D	Memo 1- Assemble	as per dwg	0.00		XG	St		13-	_	-18	/	D.	1/2 /03 /
*110 *110* QC Quality Control		QC5- Inspect part comple	eteness to step on W/O	0.00	. 19				3					
120 *120 Packaging		Identify as per dwg & Sto	ock Location:	0.00) V 3 fo	<u> </u>	- J

Packaging

									DQA:	Date: _	
NCR: Yes	s / No				WORK ORDER NON-C	CONFOR	MANCE / UP		QA Closed:	Date:	
Work Order:					DISPOSITION			AGAINST DEF	PARTMENT	/PROCESS	
WOIK Order.				······/	Dawark	1 I	Skid-tube	Crosstube		Water Jet 🗍	Engineering
Part No	•				Rework Scrap Use-as-is	Ther	Machining moforming	Small Fab Finishing		d. Eng. Coor.	Quality Other
NCR No	•				Work Order Update]	Large Fab	Composite		Supplier	
Root				Descrip	otion of work order update	Initial	1	tion	Sign &		
Cause	Date	Step	Qty	0	r Non-conformance	Chief Eng	Desc	ription	Date	Verification	QC Inspector
Doc/Data				,							
Equip/Tooling											
Operator							,			!	
Material											
Setup	7										1
Other]										
Process	7										
Supplier	7										-
Training	7										
Unapproved	7										
•					F	AULT CAT	EGORY				

Landing Gear General Ovalized Pressure/Forced Grain Bend Bending Over/Under tolerance Temperature/Cure BOM/Route Centre Not Concentric to O/S Hardware Weld Cracks Broken/Damaged Inspection Incomplete Part Incorrect Wrong Stock Pulled Crushed/Crimped. Instructions Incomplete/Unclear Part Lost/Missing Burrs Cuffs Maintenance Part Moved Contamination Mislabeled Positioned Wrong Countersink Heat Treat Power Loss/Surge Other Inspection Strip in Tube Cut Too Short Misread Offset Drill Holes Ripples in Bend Torque Waves in Extrusion Out of Calibration Drawing Out of Sequence Turning Sequence Finish Folio Outside Dimensions Wave/Twist in Tube

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Ord <i>March-01-13 1</i>		980		*970)8N*						Page 2
Item ID: Revision ID: Item Name:	D4148-041 Crosstube Lug	g Assembly, Fwd		Accept	*N900	040	100)*	Setup	Start Stop	*NS1* *NS2*
Start Date: Required Date Reference:	3/06/13 : 3/15/13	Start Qty: 2.00 Req'd Qty: 2.00	*2* *2*		Cust Item I Customer:	D:					
Approvals:		an:	Date:	Tooling: SPC (Y/N):		ite:			Run	Start Stop	*NR1* *NR2*
Sequence ID/ Work Center I 130 *130* QC Quality Control	D	Operation Description QC21- Final Inspection Memo	- Work Order Release	Set Up/ Run Hours 0.00	Tool ID	Tool #	Plan Code	Accept	t Rej Qty	2/2	Reject Insp. Number Stamp

												DQA:	Dat	te:	•
NCR: Y	/es	/ No				WORK ORDER NON-O	100	NFOR	MANCE / UP	DATE		_			
		,										QA Closed:	Dat	te:	
Work Orde	ar.					DISPOSITION				AGAINST [DEI	PARTMENT/	PROCESS		
WOIK Olde	- -					Rework	1		Skid-tube	Crosstube			Water Jet		Engineering
Part N	No.					Scrap			Machining	Small Fab		Prod	d. Eng. Coor.		Quality
	•					Use-as-is		Thern	noforming	Finishing		Rec/Stor	e/Packaging		Other
NCR N	۷o.					Work Order Update]		Large Fab	Composite [Supplier		
			1				Д	L	Γ						
Root					I .	ption of work order update	1	nitial	1	tion		Sign &			
Cause		Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Desc	ription	_	Date	Verification	n	QC Inspector
Doc/Data															
Equip/Tooling															
Operator															
Material															,
Setup															
Other					:							:			
Process															
Supplier															
Training															
Unapproved			<u> </u>												
						F	AUI	T CATE	GORY						
Landi	ng C	Gear				General				_		•	1		1
		Bending				Bend		Grain				Ovalized			Pressure/Forced
		Centre No	ot Concei	ntric to	o/s	BOM/Route		Hardwa	are			Over/Under	tolerance		Temperature/Cure
		Cracks				Broken/Damaged		Inspect	ion Incomplete			Part Incorred	ct		Weld

Instructions Incomplete/Unclear

Maintenance

Out of Calibration

Out of Sequence

Outside Dimensions

Mislabeled

Misread Offset

Part Lost/Missing

Positioned Wrong

Power Loss/Surge

Part Moved

Wrong Stock Pulled

Other

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Crushed/Crimped.

Inspection Strip in Tube

Torque Waves in Extrusion

Cuffs

Heat Treat

Burrs

Contamination

Countersink

Cut Too Short

Drill Holes Drawing

Finish

Folio

Picklist Print

March-01-13 1:52:38 PM

Work Order ID:

97980

Parent Item:

D4148-041

Parent Item Name:

Crosstube Lug Assembly, Fwd

Start Date: 3/06/13

Required Date: 3/15/13

Page 1

Start Qty: 2.00

Required Qty: 2.00

Comments:

IPP Rev:A 10.06.24 new issue DD verf:EC

IPP Rev:B 10.07.22 as per revB DD verf:JLM

IPP Rev:C 10.10.29 as per revC

DD verf:EC

IPP REV:D 11.03.02 AS PER DWG REV.D DD VERF:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MS21043-3	· 	Purchased	No			100	Each	3,177.0000	4	4			· · · · · · · · · · · · · · · · · · ·
Nut											8		
				Location		Loc Oty	<u>L</u>	oc Code					
				FG		80							
					03691	80							
				GA		106							
					23899	106							
				ST315		2991							
					23899	196				/v			
				1.	24555	2795				#			
MS21043-4		Purchased	No			100	Each	1,204.0000	1	6	GO		
Nut											<i>−−91</i>		
				Location		Loc Qty	<u>1</u>	oc Code					
				FG		36							
				1	04603	36							
				GA		97							
				1	21652	97							
				ST315		1071							
				i	21162	25							
	•				23021	500							
					23525	29							
				1	23900	517			(QX			
D2690-6		Manufactured	No	-		100	Each	33.0000	1	² <	700	3-3	-12
Lanyard Assembly						_				-11-1-1-1	12.1		
				Location		Loc Oty	_	Loc Code					
				ST014		33							
					94775	9				7			
					25935	6			<u> </u>	9×			
					97274 97750	6 12							

NCR: Y	es / No				WORK ORDER NON-	CONFOR	MANCE / UP	DATE	OV Closeq.	 Date:	
		.			1				QA Closed:		
Work Orde	er:				DISPOSITION			AGAINST DE	PARTMENT,	/PROCESS	
					Rework	7	Skid-tube	Crosstube		Water Jet	Engineering
Part N	lo.				Scrap	1 	Machining	Small Fab	Pro	d. Eng. Coor.	Quality
					Use-as-is	Ther	moforming	Finishing	-1	re/Packaging	Other
NCR N	lo				Work Order Update		Large Fab	Composite]	Supplier	
			,								
Root					ption of work order update	Initial		tion	Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chief En	g Desci	ription	Date	Verification	QC Inspector
Doc/Data	_										
quip/Tooling											
Operator						1					
Material											
Setup						İ					
Other											
Process	\dashv									1	
Supplier Training											
Unapproved	\dashv										
onapproved 1		L		<u> </u>	<u> </u>	AULT CAT	EGORY		1	1	
Landir	ng Gear	·			General						
	Bending				Bend	Grain		Γ	Ovalized		Pressure/Forced
}	Centre No	ot Conce	ntric to (o/s	BOM/Route	Hardv			Over/Under	tolerance	Temperature/Cure
Ì	Cracks				Broken/Damaged		ction Incomplete	-	Part Incorre	 	Weld
	Crushed/	Crimped.			Burrs	—	ctions Incomplete/	'Unclear	Part Lost/M	issing	Wrong Stock Pulled
ľ	Cuffs	,			Contamination	— i	tenance		Part Moved	<u> </u>	
	Heat Trea	at			Countersink	Misla	peled		Positioned \	N rong	
Ī	Inspectio	n Strip in	Tube		Cut Too Short	Misre	ad		Power Loss,	/Surge	Other
ľ	Ripples in	Bend			Drill Holes	Offset	t				
	Torque W	laves in E	extrusio	n [Drawing	Out o	f Calibration				
	Turning S	eauence			Finish	Out o	f Seguence				

Outside Dimensions

DQA:

Date:

Wave/Twist in Tube

Folio

Picklist Print

March-01-13 1:52:38 PM

Page 2

Work Order ID:	97980									
Parent Item:	D4148-041						Start 1	Date: 3/06/13		Required Date: 3/15/13
Parent Item Name:	Crosstube Lug Ass	embly, Fwd					Start	Qty: 2.00		Required Qty: 2.00
D3910-1 Crosstube Lug		Manufactured	No		100	Each	33.0000	1	2	80
				Location	Loc Qty		Loc Code			
				ST464	33			<u></u>		
				81474	2					
				89772	1					
				93755	30			ذلي	<u> </u>	
D4091-1 Mounting Lug		Manufactured	No		100	Each	6.0000	1	2	88
				Location	Loc Qty		Loc Code			,
				ST144	6					
				93232	6			ے ا	$\boldsymbol{\lambda}$	
D4148-1 Crosstube Lug Plate, Fw	v d	Manufactured	No		100	Each	17.0000	2	<u>4</u>	B97581 P
				Location	Loc Qty		Loc Code		P	S9711CG
				ST145	17				1 -	19400.
				85753	2					
				92488	. 7					
				92805	8					
D4148-3 Stud Receiver, Lower		Manufactured	No		100	Each	10.0000	1	2	SP.
				Location	Loc Oty		Loc Code			
				ST145	10					
				93419_	10			~ ~	<u>-x</u>	
D4148-5 Eyebolt Stud		Manufactured	No		100	Each	10.0000	1	2	8013-3-1
				Location	Loc Qty		Loc Code			
				ST145	10					
				94187	10				V	
									<u>~~</u> ₹	

NCR: Y	es / No				WORK ORDER NON-C	ON	NFORM	MANCE / UPDATE		•			
										QA Closed:	Date		
Work Orde	er:				DISPOSITION	_		AGAINST	DE	PARTMENT	PROCESS	_	
Part N NCR N					Rework Scrap Use-as-is Work Order Update		1	Skid-tube Crosstube Machining Small Fab noforming Finishing Large Fab Composite			Water Jet d. Eng. Coor. e/Packaging Supplier	Engineerii Quali Oth	ty
Root				Descri	ption of work order update	į	nitial	Action		Sign &	·		
Cause	Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Description		Date	Verification	QC Insp	ector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved													
					F	AUL	T CATE	GORY					
Landir	Bending Centre N Cracks Crushed/			o/s	General Bend BOM/Route Broken/Damaged Burrs		•	ire ion Incomplete cions Incomplete/Unclear		Ovalized Over/Under Part Incorre Part Lost/M	ct	Pressure/Fo Temperatur Weld Wrong Stock	e/Cure
1	Cuffs	J. Milped	-	<u> </u>	Contamination	\vdash	Mainte	,	\vdash	Part Moved	٠ ـ		

Mislabeled

Out of Calibration

Out of Sequence

Outside Dimensions

Misread

Offset

Countersink

Cut Too Short

Drill Holes

Drawing

Finish

Folio

DQA:

Positioned Wrong

Power Loss/Surge

Other

Date:

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Heat Treat

Inspection Strip in Tube

Torque Waves in Extrusion

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

March-01-13 1:52:38 PM

Work Order ID:	97980								THE PERSON NAMED IN COLUMN 2 IN COLUMN 2 IN COLUMN 2	
Parent Item:	D4148-041							Start I	Date: 3/06/13	Required Date: 3/15/13
Parent Item Name:	Crosstube Lug Asse	mbly, Fwd						Start	Qty: 2.00	Required Qty: 2.00
AN3C12A Bolts		Purchased	No			100	Each	251.0000	2	12xm1236488
				Location		Loc Qty		Loc Code		
				GA		1				
					122416	1			-	
				ST351		250				
	•				124561	250			2) ×
AN4C13A BOLT		Purchased	No			100	Each	125.0000	3	6 SP -
				Location		Loc Oty		Loc Code		·
				ST356		65				
					123900	65				×
				ST516		60			_	
					124215	60				
MS17984-C413 PIN, QUICK RELEASE		Purchased	No			100	Each	38.0000	1	2 800
				Location	<u>l</u>	Loc Oty		Loc Code		
				ST332		2				
					118612	2				
				ST508		36				
					124231	36				<u> </u>
MS20615-4M18 Rivet		Purchased	No			100	Each	193.0000	8	16 MD4859 SP 13-3-18.
				Location	<u>.</u>	Loc Oty		Loc Code		13 3 10 .
	•			GA		7				12-2-18
					122452	7				
				ST312		186				
					123390	22				
					124331	164				
										<u> </u>

		,	
NCR:	Yes	/	No

DQA: Date:

NCR: Ye	es / No				WORK ORDER NON-C	CONFOR	MANCE / UF	PDATE	QA Closed:	Date	;
Work Orde	r·		1		DISPOSITION			AGAINST DE	PARTMENT,	/PROCESS	
WOIK OIGE					Rework	1 	Skid-tube	Crosstube	1	Water Jet	Engineering
Part N	0				Scrap	1 1	Machining	Small Fab	Pro	d. Eng. Coor.	Quality
, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	·				Use-as-is	Ther	moforming	Finishing	4	re/Packaging	Other
NCR N	o				Work Order Update]	Large Fab	Composite]	Supplier	
Root		Ī	1	Descri	ption of work order update	Initial	T A	ction	Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chief Eng	ı	cription	Date	Verification	QC Inspector
Doc/Data											
equip/Tooling											
Operator		ļ				İ					
Material						ļ				ļ	
Setup											
Other											
Process											
Supplier []	•
Training											
Unapproved		<u> </u>]	
					F	AULT CAT	EGORY				
Landin	g Gear				General				7	_	
	Bending				Bend	Grain			Ovalized	<u> </u>	Pressure/Forced
1	Centre No	ot Conce	ntric to (o/s	BOM/Route	Hardw			Over/Under	⊢	Temperature/Cure
	Cracks				Broken/Damaged	Inspec	tion Incomplete		Part Incorre	-	Weld
	Crushed/	Crimped			Burrs	Instru	ctions Incomplete	e/Unclear	Part Lost/M	issing	Wrong Stock Pulled
	Cuffs				Contamination	Main	tenance		Part Moved		
	Heat Trea	at			Countersink	Mislat	eled		Positioned \	_	
	Inspectio	n Strip in	Tube		Cut Too Short	Misre	ad		Power Loss,	/Surge	Other
[Ripples in	n Bend			Drill Holes	Offset					
	Torque V	Vaves in I	Extrusio	n [_	Drawing	Out of	Calibration				
	Turning S	Sequence	!		Finish	Out of	Sequence				
Γ	Wave/Tw	vist in Tul	be		Folio	Outsid	le Dimensions				

Wave/Twist in Tube

March-01-13 1:52:38 PM

Work Order ID: Parent Item: Parent Item Name:	97980 D4148-041 Crosstube Lug Assembly, Fwd						ate: 3/06/13 Oty: 2.00	Required Date: 3/15/13 Required Qty: 2.00
NAS1149C0332R Washer	Purchased	No		100	Each	10,529.000	4	8 86
		Location	<u>1</u>	Loc Qty		Loc Code		
•		FP001		264				<u> </u>
			123355	264				<u> </u>
		ST292		5265				· · · · · · · · · · · · · · · · · · ·
			123248	18				
			123759	5247				<u>_</u>
		ST517		5000				
			124580	5000				
NAS1149C0432R Washer	Purchased	No		100	Each	2,666.0000	6	1250 13-3-18
		<u>Locatio</u>	<u>n</u>	Loc Qty		Loc Code		
		GA		5				
			121255	5				•
		ST292		2661				
			119124	6				
			122441	2655			/ə	X

NCR:	Yes /	/ No				WORK ORDER NON-	COL	VFORM	MANCE / UPD	ATE				
											(QA Closed:	Date:	
Work Orde	or.	*				DISPOSITION				AGAINST D	DEP.	ARTMENT/	PROCESS	
Part N	 No				`	Rework Scrap Use-as-is Work Order Update		Therm	Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite			Water Jet d. Eng. Coor. e/Packaging Supplier	Engineering Quality Other
Root		**			t	ption of work order update	1	Initial	Acti			Sign &		
Cause		Date	Step	Qty		or Non-conformance 💨 👚	Ch	ief Eng	Descri	ption	_	Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup													· .	
Other Process Supplier Training														•
Unapproved				<u>l.</u>	L	_								
		·			······		AUL	T CATE	GORY					
Landi	B C C C C	ending entre No racks rushed/o uffs eat Trea nspection	n Strip in	y .	o/s	General Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short		Instruct Mainte Mislabe Misread	ion Incomplete ions Incomplete/U enance eled	Inclear		Ovalized Over/Under Part Incorred Part Lost/Mi Part Moved Positioned V Power Loss/	ct ssing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other
	Ripples in Bend				Drill Holes	oles Offset								

Out of Calibration

Outside Dimensions

Out of Sequence

Date:

DQA:

Turning Sequence
Wave/Twist in Tube

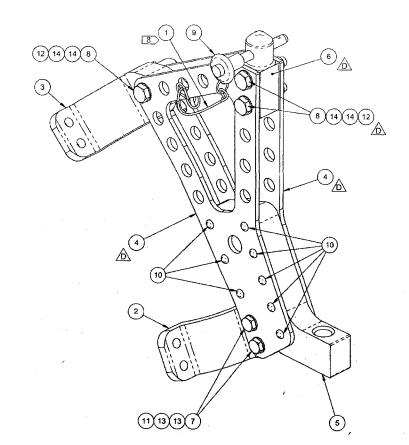
Torque Waves in Extrusion

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G



	П	ΓEΜ	QTY -041	P/N	DESCRIPTION
			X	D4148-041	FWD X-TUBE LUG ASSY
	-	1	1	D2690-6	LANYARD
		2	- 1	D3910-1	X-TUBE LUG
	1	3	1	D4091-1	MOUNTING LUG.
	r-	4	2	D4148-1	FWD X-TUBE LUG PLATE
	L	5	1	D4148-3	STUD RECEIVER LOWER
		6	-1	D4148-5	EYEBOLT STUD
		7	2	AN3C12A	BOLT
^	\vdash \vdash	8	3	AN4C13A	BOLT
<u>₼</u> –	7	9	- 1 - 1	MS17984-C413	PIP PIN
		10	8	MS20615-4M18	RIVET
	19	11	2	MS21043C3	NUT
	H	12	3	MS21043C4	NUT
		13	4	NAS1149C0332R	WASHER
		14	6	NAS1149C0432R	WASHER

DESIGN	MB	DADT AEDOCD		
REV.		DESCRIPTION	BY	DATE
_ A	NEW ISSUE		MB	10.06.18
B . ·	MASHER (ZN D3-1, B MS20615-4M20 (ZN D	\$20615-4M18 WITH CTY(2) EACH AND CTY(4) NAS1140C0332R 7-2 & 84-2); MS20815-4M18 WAS 3-1 & 87-2); Ø0.1912 PL REPLACES); Ø0.129 7 PL WAS 10 PL (ZN A7-3); N C&-5) D0-607-2 REV. B.	МВ	10,07.05
С	REDESIGNED D4148- ISSUES WITH D350-5	1/-3 TO ADDRESS COMPATIBILITY 91 SHORT STEPS	мв	10.10.12
D	HOLE DIA CHANGED CHANGED TO 0.250° MS21043C3 AND QTY AN4C13A, MS21043C 1,C4-2)	sc	11.02.22	

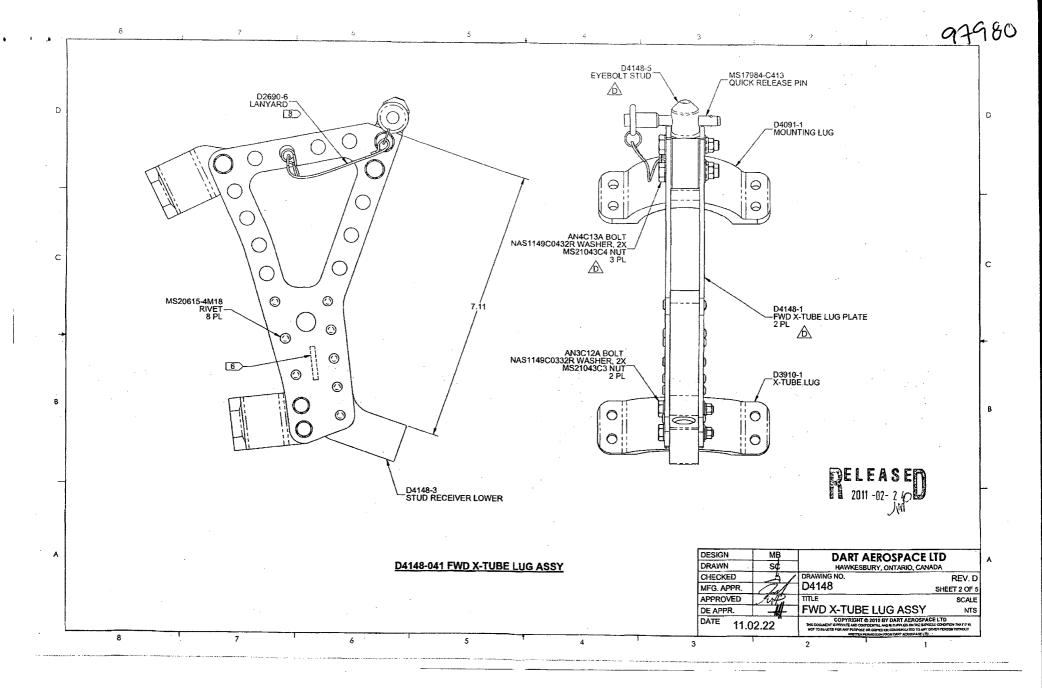
ESIGN	MB	DART AEROSPACE	ITD	
RAWN	sc	HAWKESBURY, ONTARIO, CAN		
HECKED		DRAWING NO.	REV. D	
IFG. APPR.	Class	D4148	SHEET 1 OF 5	
PPROVED	MA	TITLE	SCALE	
E APPR.	-#	FWD X-TUBE LUG ASSY	NTS	
ATE 11.0	2 22	COPYRIGHT © 2010 BY DART AEROSPACE LTD THE DOCUMENT OF PRIVATE AND CONFESSION FOR IS CUPPLED ON THE EXPENSE CONCINON THAT IT IS		

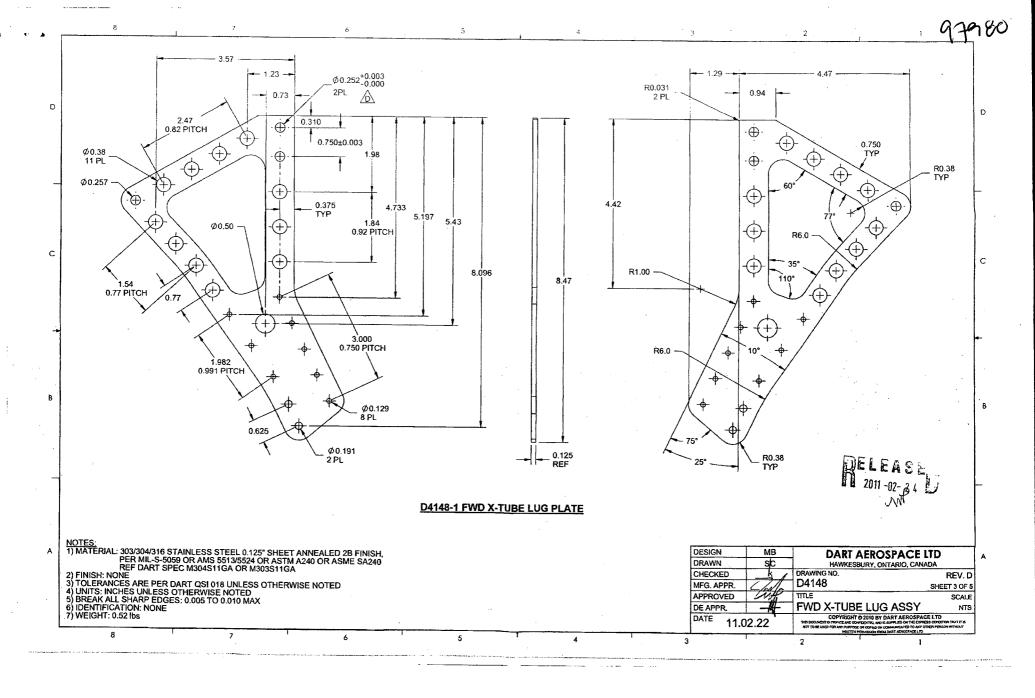
D4148-041 FWD X-TUBE LUG ASSY

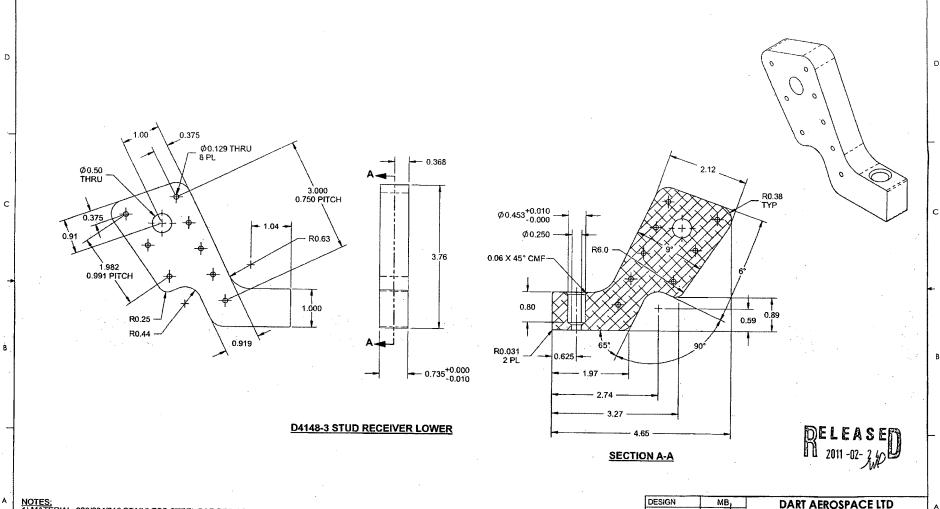
NOTES:
1) MATERIAL: N/A
2) FINISH: NONE
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: N/A
6) IDENTIFICATION: IDENTIFY WITH DART P/N "D4148-041" PER DART QSI 044 6.1
7) WEIGHT: 3.67 lbs
8) ATTACH D2690-6 TO D4148-1 BY LOOPING AROUND A LIGHTENING HOLE FIRST AND THEN SECURE TO MS17984-C413

D. JOPY "S. H.ST 1 < F97980 MLJ

13-03-04







NOTES:
1) MATERIAL: 303/304/316 STAINLESS STEEL BAR PER ASTM A582 OR ASTM A276 REF DART SPEC M304B OR M303B
2) FINISH: NONE
3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK ALL SHARP EDGES: 0.005 TO 0.010 MAX
6) IDENTIFICATION: NONE
7) WEIGHT: 1.52 lbs

8

DESIGN MB		DART AEROSPACE	TD		
DRAWN	sc	HAWKESBURY, ONTARIO, CANADA			
CHECKED	M	DRAWING NO.	REV. D		
MFG. APPR.	//M	D4148	SHEET 4 OF 5		
APPROVED	WAS	TITLE	SCALE		
DE APPR.	-#	FWD X-TUBE LUG ASSY	NTS		
DATE 11.0	02.22	COPYRIGHT © 2010 BY DART AEROSPACE LTD THE DOCUMENT OF PRIMATE AND CONTROL THE OF EMPIRED ON THE DEPTICES CONTROL THAT IT IS NOT TO BE USED THAN AND FORCE OF COMPLE OF COMMANDIATED TO AN OTHER PRISON WITHOUT			

